

**REMARKS**

Examiner Hamlin is again thanked for his careful consideration of the present patent application. The Applicant respectfully disagrees with Examiner Hamlin's statement that the claims of the present invention are obvious over the Kieke reference in view of the Iizuka reference (Patent No. 3,622,462) and the Krochta reference (Patent No. 4,885,387). Applicant respectfully solicits that the Section 103 rejection be withdrawn for each of the following reasons:

- The Kieke reference does not disclose corn hemicellulose, (an element of claim 1, the claims dependent thereon, and claim 25) and the Iizuka reference and the Krochta reference do not teach that corn hemicellulose and wood hemicellulose are interchangeable or render the use of corn hemicellulose obvious;
- The references cited by the Examiner are nonanalogous art and cannot be relied upon to support an obviousness rejection;
- No suggestion or motivation has been shown to combine the references cited by the Examiner;
- The Kieke reference does not disclose a cross-linking agent effective for the invention (an element of claim 3, claim 5 and the claims dependent thereon) by broadly disclosing several genera that collectively include of millions of compounds, two of which are mentioned in the application as acceptable cross-linking agents.

Applicant also notes that Applicant has amended the claims to add claims 27-59. Applicant respectfully asserts that claims 27-59 also are patentable in light of the prior art.

I. The Krochta reference and the Iizuka reference do not teach that corn hemicellulose and wood hemicellulose are interchangeable

The principal reference relied on by the Examiner, the Kieke reference, does not teach the use of corn hemicellulose, an element of claim 1, the claims that depend thereon and claim 25. The Examiner asserts, however, that substitution of corn hemicellulose for the kraft hemicellulose disclosed in the Kieke reference is obvious because the Examiner asserts the Krochta reference and the Iizuka reference allegedly teach that corn hemicellulose and kraft hemicellulose are interchangeable. Applicant respectfully disagrees with the Examiner regarding the scope of the teaching of the Krochta reference and the Iizuka reference, and disagrees that the substitution of corn hemicellulose for kraft hemicellulose would have been obvious.

The Krochta reference does not teach that corn hemicellulose and kraft hemicellulose are generally interchangeable. The Krochta reference involves a process for production of glycolic and oxalic acids. One of the components used in this production process is a polysaccharide-containing material. The Krochta reference states that any starch or starch containing material can be used as the polysaccharide-containing material and that wood hemicellulose and corn hemicellulose are examples of starch containing materials. (Krochta, col. 5, ln. 10-16.) Thus, Krochta merely teaches that wood hemicellulose and corn hemicellulose are examples of starch containing materials. It does not teach that wood hemicellulose and corn hemicellulose are generally interchangeable for all purposes.

The Iizuka reference also does not teach that corn hemicellulose and kraft hemicellulose are generally interchangeable. The Iizuka reference involves a process for producing an enzyme (a glucose isomerase enzyme) that is useful in the food industry. One of the nutrients used in the enzyme production process includes a xylose. The Iizuka reference states that any plant cell wall can be used to form the xylose and that hemicellulose is a portion of such plant cell walls.

(Iizuka, col 3, ln. 55-65). Thus, Iizuka only teaches the well-known fact that hemicellulose (from corn, wood, or any other plant) is a portion of plant cell walls. It does not teach that corn hemicellulose and wood hemicellulose are generally interchangeable for all purposes.

Because the Kieke reference does not disclose corn hemicellulose, (an element of claim 1, the claims dependent thereon, and claim 25) and the Iizuka reference and the Krochta reference do not teach that corn hemicellulose and wood hemicellulose are interchangeable or render the use of corn hemicellulose obvious, the Applicant respectfully solicits that the Examiner's obviousness rejection be withdrawn.

II. The References Cited in the Office Action are Nonanalogous Art that Cannot be Relied Upon to Support an Obviousness Rejection

The applicant also respectfully solicits that the Examiner's rejection should be withdrawn for the additional reason that the references cited in the Office Action are nonanalogous and cannot be relied upon to support a finding of obviousness. *In re Oetiker*, 977 F.2d 443 (Fed. Cir. 1992) (nonanalogous art can not be relied upon to support a *prima facie* case of obviousness). For art to be analogous, it must be (1) "in the same field of endeavor" of the applicant's invention or (2) "reasonable pertinent to the particular problem with which the inventor is involved." *In re Clay*, 966 F.2d 656, 658 - 659 (Fed. Cir. 1992) (citing *In re Deminski*, 796 F.2d 436, 442 (Fed. Cir. 1986); *In re Wood*, 599 F.2d 1032, 1036 (CCIA 1979)). The references relied on by the Examiner do not fall into either of these categories.

Applicant's invention relates to the suppression of dust on surfaces such as roadways. The Kieke reference, on the other hand, relates to a method of recovering petroleum from subterranean formations. The Kieke reference is not in the same "field of endeavor" as Applicant's invention. Moreover, methods to recover petroleum from deep within the Earth's

surface are not pertinent to the suppression of dust on roadways. *See, In re Clay* 964 F.2d 656, 659 (a reference involving extraction of crude petroleum is not analogous with a reference involving storage of refined liquid hydrocarbon, even though "both [references] relate to the petroleum industry.") In fact, the methods to recover petroleum disclosed in the Kieke reference and Applicant's dust suppressants for surfaces such as roadways are further away from each other than the disclosures at issue in *In re Clay*. Like in *In re Clay*, the Kieke reference cannot be considered analogous to the Applicant's invention and therefore cannot be relied upon as a basis of a rejection on grounds of obviousness.

Applicant respectfully submits that removal of the Kieke reference from consideration overcomes the Examiner's basis for rejection of the application on grounds of obviousness.

The Iizuka reference and the Krochta reference also are nonanalogous art. The Iizuka reference concerns a method for creation of a food enzyme useful in the food industry. The Krochta reference concerns a method of making glycolic and oxalic acids. Enzymes useful in the food industry and methods of producing glycolic and oxalic acid are not in the same "field of endeavor" as dust suppression on surfaces such as dirt roads, the field of Applicant's invention. *In re Clay*, 966 F.2d at 658 – 659. Moreover, food enzymes and glycolic and oxalic acid are not pertinent to the suppression of dust on roadways. Accordingly, the Krochta and Iizuka references are not analogous and cannot support a finding of obviousness. *In re Oetiker*, 977 F.2d at 1447; *In re Clay*, 966 F.2d at 659 – 660.

Applicant respectfully submits that removal of the Krochta reference and the Iizuka reference from consideration also overcomes the Examiner's rejection on grounds of obviousness.

The Iizuka and Krochta references also are nonanalogous to the Kieke reference. Methods for production of a food enzyme useful in the food industry (Iizuka) and methods of

making glycolic and oxalic acid (Krochta) are not analogous and not in the same "field of endeavor" as methods of recovering petroleum from subterranean formation (Kieke). Accordingly, it is not appropriate to combine the Iizuka and Krochta references with the Kieke reference to support rejection of the pending claims.

### III. The Record Contains No Motivation to Combine the Cited References

Applicant also respectfully solicits that the obviousness rejection should be withdrawn for the additional reason that the record contains no objective evidence of a motivation to combine the references cited. To establish a *prima facie* case of obviousness, a clear motivation to combine references must be shown. *In re Fine*, 837 F.2d at 1075 ("teachings of references can be combined *only* if there is some suggestion or incentive to do so.") (emphasis in original) (quoting *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1994); *In re Lee*, 277 F.3d 1338, 1343 Fed. Cir. (2002)). The motivation can be shown through knowledge generally available within the art or an objective teaching within the prior art. The motivation cannot be based on the teachings of the present application. *In re Fine*, 837 F.2d at 1075. The motivation must be based on "objective evidence of record." *In re Lee*, 277 F.3d at 1343 (quoting and citing *Brown & Williamson tobacco Corp. v. Phillip Morris, Inc.*, 229 F.3d 1120, 1124-35 (Fed. Cir. 2000); *C.R. Bard, Inc. v. M3 Systems, Inc.*, 157 F.3d 1340, 1352 (Fed. Cir. 1998); *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1984)).

The record in this case contains no "objective evidence" of a motivation or teaching to combine the cited references. The Examiner asserts that the Krochta reference and the Iizuka reference establish that it is well known in the art that kraft hemicellulose and corn hemicellulose are interchangeable. However, as noted above, these references do not teach general interchangeability of kraft hemicellulose and corn hemicellulose. Rather, the references merely

state that (1) corn hemicellulose and kraft hemicellulose both are starches that can be used in the creation of a food enzyme useful in the food industry, and (2) corn hemicellulose and kraft hemicellulose both are derived from plant cell walls, which are useful in the making of glycolic and oxalic acids. The references do not establish that it is well known in the art that corn hemicellulose and kraft hemicellulose are generally interchangeable.

The references also contain no motivation within them to replace the kraft hemicellulose of the Kieke reference with corn hemicellulose. The Examiner has not cited to any such motivation, and none exists in the references. In fact, the Kieke reference teaches away from such a combination. The kraft hemicellulose mentioned briefly in the Kieke reference is described merely as an impurity to an ingredient used in the disclosed process. (Kieke, Col. 5, ln. 13 - 17.) There would be no motivation to focus on an impurity of an ingredient when considering revisions to the invention.

The combination of references cited by the Examiner would require an individual interested in suppression of dust on surfaces such as roadways to combine an impurity from a process for recovering subterranean petroleum with substances used in a process for manufacturing an enzyme useful in the food industry or a method of making glycolic or oxalic acids. Such a combination is not obvious and there is no motivation to make such a combination.

Due to the absence of objective evidence in the record concerning a motivation to combine the references, the Applicant respectfully submits that the obviousness objection should be withdrawn. *See, In re Fine*, 837 F.2d at 1073 (substitution of nitric oxide detector in one reference with sulfur dioxide detector in second reference not supported by any objective evidence in the two references and therefore an obviousness rejection is improper).

IV. The Disclosure in the Kieke Reference to Several Genera that Collectively Include Millions of Compounds Does Not Render Obvious the Specific Species Contained in Claims of the Present Application

Claim 3, independent claim 5 and the dependent claims thereon specify an effective cross-linking agent. This effective cross-linking agent is not obvious in light of the prior art. The Examiner asserts that the use of an effective cross-linking agent is obvious because the Kieke reference discloses ketone and aldehydes and the instant application states that acetone and formaldehyde (species of the broader genera of ketones and aldehydes) are acceptable cross-linking agents. However, the Kieke reference contains far too broad a disclosure to render obvious the use of acetone or formaldehyde.

The disclosure of the Kieke reference which the Examiner asserts renders the use of acetone and formaldehyde obvious is detailed below:

"Generally phase partitioning surfactant systems include a co-solvent such as an alcohol, amide, ester, ether, aldehyde, ketone, alkoxyated alcohol, sulfited or sulfonated alcohol and sulfonated alkoxyated alcohol. Such co-solvents are usually alkynols having 4 to 6 carbon atoms." (Kieke, col. 7, ln. 14 - 21.)

This disclosure literally discloses several genera, thousands of sub-genera, and millions of chemicals. Such a broad disclosure cannot render obvious two of the chemicals (formaldehyde or acetone) that are included in the hundreds of thousands of chemicals. *In re Hair's*, 16 F.3d 380, 382 (Fed. Cir. 1994) (disclosure of several genera containing millions of compounds does not render obvious a particular compound included in the several genera).

The Kieke reference does not render obvious the use of a cross-linking agent in the present invention. Accordingly, Applicant respectfully submits that the Examiner's rejection of claims 3, 5 and the claims dependent thereon should be withdrawn.

**CONCLUSION**

For these reasons, withdrawal of the Section 103 rejection and allowance of all claims as currently written are respectfully solicited.

Respectfully submitted,

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